



**Australian Government**

# **MEM05001 Perform manual soldering/desoldering - electrical/electronic components**

**Release: 1**

# MEM05001 Perform manual soldering/desoldering - electrical/electronic components

## Modification History

Release 1. Supersedes and is equivalent to MEM05001B Perform manual soldering/desoldering – electrical/electronic components

## Application

This unit of competency defines the skills and knowledge required to perform manual soldering/desoldering for the installation and fabrication of electrical/electronic components.

Where advanced specification and high reliability soldering associated with the installation of electrical/electronic components and in areas where reliability of connections is critical unit MEM05002 Perform high reliability soldering and desoldering should also be selected.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measuring equipment is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of tools is required unit MEM18001 Use hand tools and unit MEM18002 Use power tools/hand held operations, should also be selected as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

**Band: A**

**Unit Weight: 4**

## Pre-requisite Unit

|          |                                                              |
|----------|--------------------------------------------------------------|
| MEM11011 | Undertake manual handling                                    |
| MEM13015 | Work safely and effectively in manufacturing and engineering |
| MEM16006 | Organise and communicate information                         |

## Competency Field

Fabrication

## Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- |   |                                     |     |                                                                                             |
|---|-------------------------------------|-----|---------------------------------------------------------------------------------------------|
| 1 | <b>Determine job requirements</b>   | 1.1 | Follow standard operating procedures (SOPs)                                                 |
|   |                                     | 1.2 | Comply with work health and safety (WHS) requirements at all times                          |
|   |                                     | 1.3 | Use appropriate personal protective equipment (PPE) in accordance with SOPs                 |
|   |                                     | 1.4 | Identify job requirements from specifications, sketches, job sheets or work instructions    |
|   |                                     |     |                                                                                             |
| 2 | <b>Prepare and solder materials</b> | 2.1 | Prepare materials to specifications using appropriate tools, equipment, materials and SOPs  |
|   |                                     | 2.2 | Select correct soldering techniques, materials and soldering tools                          |
|   |                                     | 2.3 | Joint, mount, shape materials to specification                                              |
|   |                                     | 2.4 | Observe procedures for the protection of components                                         |
|   |                                     | 2.5 | Apply solder to component and remove excess material using appropriate techniques           |
|   |                                     | 2.6 | Undertake inspection and report and record inspection results according to SOPs             |
|   |                                     |     |                                                                                             |
| 3 | <b>Undertake desoldering</b>        | 3.1 | Select appropriate techniques, desoldering tools and equipment for given task               |
|   |                                     | 3.2 | Desolder materials/components and minimise damage to materials/components according to SOPs |
|   |                                     | 3.3 | Remove and clean material/components to specifications                                      |

## Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

**Materials include the following:**

- solder
- flux

**Solder includes one (1) or more of the following:**

- solid
- resin core
- paste

**Flux includes one (1) or more of the following:**

- resin
- powder

**Soldering irons include one (1) or more of the following:**

- simple
- cordless
- temperature controlled
- soldering station
- soldering tweezers
- hot knife

**Tools used with soldering irons include one (1) or more of the following:**

- pliers
- side cutters
- brushes
- files
- solder syringes
- holding devices

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05001B Perform manual soldering/desoldering – electrical/electronic components

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

# **Assessment Requirements for MEM05001 Perform manual soldering/desoldering - electrical/electronic components**

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## **Performance Evidence**

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- planning to solder by selecting appropriate solder, tools and holding devices for protection of components
- soldering materials/components to specification and remove any excess solder
- inspecting solder joints to comply with inspection procedures and record the results
- desoldering materials/components using appropriate techniques to minimise damage and remove and clean to specifications.

## **Knowledge Evidence**

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- cleaning solutions and properties and cleaning procedures
- methods of joint preparation
- properties of fluxes and their uses
- heat and damage protection procedures
- procedures for preventing electrostatic discharge damage
- soldered joint testing and inspection procedures
- reworking procedures and precautions.

## **Assessment Conditions**

- Assessors must:
  - have vocational competency in performing manual soldering/desoldering – electrical/electronic components at least to the level being assessed with relevant industry knowledge and experience

- satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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